

Water

Learner Outcomes

The learner will

- Read and discuss information about the water cycle, ground water, acid rain, water pollution and wastewater treatment. (Basic Text)
- Familiarize himself/herself with alkalinity, ammonia, carbon dioxide, chlorides, chlorine, chromium, coliform bacteria, copper, foaming agents, hardness, iron, lead, mercury, nitrates and nitrites, dissolved oxygen, pH, phosphates, sulfides and sulfates, temperature, turbidity, velocity and volume.

Background

This lesson plan utilizes the Second Edition of Hach's *Water, Water Everywhere -- Student Reading Unit About Water Quality* (Basic Text) and *Water Quality Factors Reference Unit*. If your classroom does not have these texts, it is suggested that you order them for your students. If time permits, it is highly recommended that the teacher selects and has students perform various experiments in the Reference Unit.

The majority of questions on the pre/post test are answered in *Water, Water Everywhere*. (Ordering information: Hach Company. PO Box 389, Loveland CO 80539. 970/669-3050.)

Materials

- Supplement numbers 5.1, 5.2, 5.3
- *Water, Water Everywhere: Student Reading Unit (Basic Text)* by Cliff Jacobson, 1991
- *Water, Water Everywhere: Water Quality Factors Reference Unit* by Cliff Jacobson, 1991
- Flip chart
- Markers

Assessments

- Pre/Post-tests
- List of facts (flip chart)

Activity #1
Pre-test
20 minutes

Procedure

The teacher will

- Administer pre-test.

Activity #2

Basic Text

2 1/2 class periods plus homework time

Procedure

The teacher will

- Assign students the *Water, Water Everywhere* textbooks to read.
- As homework, have students list 100 water facts/terminology for extra credit.
- The following day, instruct students to take turns adding their facts to a master list. (Use flip chart.)
- Discuss with students basic water terminology and facts that they listed (and failed to list) on the flip chart. (Supplement 5.4 answers many of the questions found on the pre/post tests.)

Activity # 3

Study Proposal and Field Protocol

1 class period

Procedure

The teacher will

- Invite a guest speaker from Carlsbad Caverns NP to review the study proposal and field protocol with the class.